

R-4904 ARCNET Line Analyzer
OEM Version
("The Sniffer")

Installation and Operation Manual

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Part Number 20005-001

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1. INTRODUCTION

The R-4904 ARCNET Line Analyzer, colloquially known as the "Sniffer", is a special purpose hardware unit which functions as a network data analyzer for ARCNET. The unique hardware feature, which is not possible using any standard ARCNET computer node, is the ability to receive any data packet which is transmitted on the network.

2. SPECIFICATIONS

(Subject to change without notice)

Hardware

Bus:	IBM PC 8 bit connector
Network:	Standard ARCNET BNC connector on rear
Warranty:	One year

Software

Sniffer Software is not provided as part of the R-4904 OEM version. It must be written entirely by the OEM. Inquire about the R-4903 if you require the complete analysis software.

3. CONFIGURATION AND ORDERING INFORMATION

Part number:	R-4904 ARCNET Line Analyzer (OEM version) For installation by end-user in existing IBM PC equipment
Price (USA):	\$2,000.00 per unit, F.O.B. Sunnyvale, CA.
Delivery:	60 days A.R.O.

4. INSTALLATION

The Sniffer system (R-4904) consists of the following components:

1. A network interface card, configured to be station number \$77, where \$ indicates a hexadecimal number. If you need to change the Sniffer station address, see the instructions and warning below. **The Sniffer cannot be assigned ARCNET station addresses \$00, \$01, \$02, \$03, or \$80.**
2. Documentation on the ARCNET Network Interface Card (Nestar LC40-0404) and this writeup.

Open your IBM PC computer and install the network interface card in any free slot.

If you wish to change the ARCNET station address of the Sniffer because the default address of \$77 is in use on your network, then set the ARCNET station address to whatever you choose, **except ARCNET station addresses \$00, \$01, \$02, \$03, or \$80. Doing so will produce meaningless results and may adversely affect network behavior.**

The station address is set by an 8-position switch marked "STN". The bit positions are indicated on the card by "lsb" for least significant bit, and "msb" for most significant bit; if the card is held with the connector up then the bits can be read in natural order with the most significant bit on your left.

For each bit position, set the switch to **OFF** for a 1-bit and **ON** for a 0-bit.

5. SNIFFER PROGRAMMING

To write your own software, you will need to be familiar with programming the Network Interface Card as described in the accompanying Nestar manual LC40-0404 "CARDCHK Utility program and Network Interface Card Theory of Operation for the IBM Personal Computer", as well as the documents referenced there which explain the programming of the LSI devices that implement ARCNET. Additional features of the Sniffer NIC are as follows:

NIC Control and Status Register (xx0802)

Bit D0: Controls the operation as a Sniffer. When written with 0, the Sniffer is a normal NIC; when written with 1, Sniffer operation is enabled and packets from all stations will be received.

As a status input, D0 indicates that a packet has been received by the Sniffer, and a Sniffer interrupt has been requested.

Bit D2: Enables Sniffer interrupts when written with 1; disables Sniffer interrupts when written with 0.

Other notes about the Sniffer hardware:

1. A normal "enable receive" command should be sent to the RIM before the Sniffer is enabled.
2. When a packet has been received, the Sniffer should be momentarily disabled by writing a 0 into bit D0 of the control register, then later reenabled for the next packet. This should be done as quickly as possible to avoid missing the next packet. Before reenabling the Sniffer, you can reissue the RIM "enable receive" to change to a different buffer if the data from the previous packet has not been processed.
3. As far as the RIM is concerned, packets received by the Sniffer are not valid and will not result in setting the RI status bit. The only exception is that broadcast packets on the network will be received in the usual fashion. If RI ever gets set while the Sniffer is in operation, the "enable receive" command to the RIM will have to be reissued.
4. As with any other interrupting device, the interrupt controller of the PC (8259) must be enabled to receive interrupts from the interrupt level to which the NIC is wired, which is IRQ 2 by default. The interrupt controller must also be cleared before the interrupt routine ends to arm it for the next interrupt.